SOUVIK DUTTA

3320 Montgomery Dr, Santa Clara, CA 95054

Email: souvik.iitb09@gmail.com

LinkedIn: /in/souvik-dutta

EDUCATION

MS, Ph.D., *University of Illinois Urbana-Champaign, USA* Aug 2013 - Feb 2021

- **Field of Research**: Mathematical Physics **GPA:** 3.92/4.0
- **Relevant Courses**: Statistical Learning, Optimization Theory, Machine Learning, Deep Learning

Bachelor of Technology, *Indian Institute of Technology (IIT) Bombay, India* Jul 2009 - May 2013

- **Major**: Engineering Physics (with Honors) **GPA:** 8.74/10.0
- **Thesis**: "Optimized clustering algorithms at particle colliders"; received Undergraduate Research Award

PROFESSIONAL EXPERIENCE

Senior Machine Learning Scientist, *Veritas Technologies, USA* Mar 2021 - present

- Heading the Predictive Insights AI/ML team to enhance key features in the Veritas product portfolio
- Deployed a Deep Learning pipeline in **Python** to predict failure for hard drives in customer appliances
- Led to proactive replacement for **62%** drives at end-of-life; reduced false-positive rate by **30%** est. QoQ

Graduate Research Fellow, *University of Illinois Urbana-Champaign, USA* Sep 2015 - Jan 2021

- Conducted research on quantum scrambling through simulations of Ising-spin models on MATLAB
- Combined statistical and numerical tools to explain simulation results and design analytical models
- Developed **3** novel numerical methods to study quantum dynamics; led to **40%** speed-up over baseline

Graduate Teaching Assistant, *University of Illinois Urbana-Champaign, USA* Sep 2013 - Aug 2015

- Designed **Python** sessions for Statistical Analysis course; won the "Excellence in Teaching" award 4 times
- Assisted collaboration, managed teams of 3-5, conveyed complex ideas and motivated inquisitive thinking

Summer Research Intern, *CERN, Switzerland* May - Aug 2012

- Developed a robust particle tagging and clustering algorithm at **93%** accuracy; implemented on **C++**
- Worked with cross-functional teams on building data monitoring, acquisition and analysis tools for detectors

OTHER RELEVANT PROJECTS

Forecasting power usage for solar panel viability, *Ameren Energy Illinois, USA* May - Sep 2020

- Implemented a Machine Learning model to predict short-term variations in solar photovoltaic (PV) output
- Estimated generation efficiency at **76%** accuracy by detecting degradation of panel images in real-time
- Used **FB Prophet** models to predict average power consumption and deduce optimum pricing schedule

Portfolio management and market timing, *Udacity Nanodegree program* Feb - May 2020

- Explored portfolio risk and returns to fully automate portfolio construction and management using ML
- Used **FB Prophet** and Actor-Critic reinforcement learning models to predict portfolio returns and construct market-cap weighted equity to forecast and hedge risk; achieved R-squared of **0.76** for S&P 500 stocks

TECHNICAL SKILLS

Languages: Python, R, Java, Javascript, C, C++

Development: PyCharm, MongoDB, PostMan API, Mathematica, BigQuery, ggplot2, MATLAB

Machine Learning: Bayesian Classification and Regression, Clustering, Tree-based Models, Ensemble Methods, Recommender Systems, Natural Language Processing, Convolutional Neural Networks, Reinforcement Learning

Libraries: Scikit-learn, Pandas, NumPy, SciPy, Matplotlib, PyTorch, Keras, Prophet, XGBoost, NLTK